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VHF SCINTILLATIONS AND TEC AT MANILA.(U)
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VHF SCINTILLATIONS AND TEC AT MANILA

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A daily 24-hour monitor is maintained at Manila of total electron content and of scintillation at 136, 244, 257 and 1541 MHz signals from geostationary satellites.

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VHF SCINTILLATIONS AND TEC AT MANILA

Victor L. Badillo

Scintillation data of VHF signals from geostationary satellites and ionospheric total electron content (TEC) data were obtained at Manila Observatory located at 121° 05'E, 14° 38'N. The site was chosen to determine a longitudinal effect of these phenomena.

The scintillation data, suitable for calculation of scintillation indices, were determined from recordings of the received amplitudes while the TEC was determined from the Faraday rotation of the signals of satellite ETS-2. The $n\pi$ ambiguity was resolved using f_oF2 values from the ionosonde operating one mile north of the polarimeter site. Reception was monitored continuously over 24 hours. The satellites, their transmission frequencies and locations are as follows:

satellite	Long.°	f(MHz)	Az.°	El.°
Marisat 3	176.3E	257.55 1541.5	100	26
ETS-2	129.5E	136.11	148	71
Fltsatcom	75. E	244.14	256	35

The transmissions of ETS-2 provided the signals for determining TEC and scintillations at that frequency. The other two satellites provided signals for scintillation data, with Marisat 3 also providing signals for scintillation

data in the L-band. The TEC equipment was the Air Force VHF polarimeter. A 12-foot parabolic dish was used to receive the Marisat signals while a short Yagi sufficed for the Fltsatcom signals.

TEC data and scintillations at 136 MHz were determined from April 1980 onward, except when the satellite was turned off during the equinox period. Unfortunately scintillation data at the other frequencies were not obtained till the start of 1981. Readings were taken at each quarter of the hour and then encoded for punched card format following procedures described in the Manuals. These were sent at the end of the month to Air Force Geophysics Laboratory.

The data obtained is useful for determining the characteristics of equatorial TEC and scintillations at Manila's longitude and for synoptic studies. They provide material for studying the ionospheric effects of solar disturbances.